

Supplement to FER 45

Supplement #2 to FER-45

October 16, 1978

Gary S. Rasmussen & Associates
1906 So. Commercenter East, Suite 207
San Bernardino, CA 92408

Dear Gary:

Your letter and data pertaining to our July 1, 1978 Preliminary Review Map of Revised Special Studies Zones, Yucaipa Quadrangle, have been received.

Your comments and recommendations are appreciated and will be taken into consideration prior to the release of the revised official map of this quadrangle.

Sincerely,

EARL W. HART
Senior Geologist
San Francisco District Office

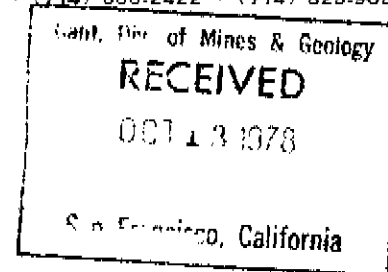
cc (w/attached letter of 10/11/78):
State Geologist
State Mining and Geology Board (Sprague)
Drew Smith

EWH/dp

GARY S. RASMUSSEN & ASSOCIATES / ENGINEERING GEOLOGY

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October 11, 1978



California Division of Mines and Geology
Ferry Building, Room 2022
San Francisco, California 94111

Attention: Earl Hart

Subject: Proposed New Alquist-Priolo Special Studies Zones for Yucaipa
Quadrangle, Yucaipa, California, Map Dated July 1, 1978.

In accordance with your letter dated June 29, 1978, we would like to make a few comments concerning the proposed additional Special Studies Zones along the Chicken Hill and Western Heights fault zones in the Yucaipa area. I hope you will have the opportunity of taking these comments into account prior to publication of the official map even though it is slightly beyond the review date.

CHICKEN HILL FAULT ZONE

Our report dated October 11, 1977 on the 45-acre parcel at the southwest corner of Tenth Street and "D" Street, Yucaipa, California, Project No. 1237, has been slightly modified and revised as a result of a review of that report by Earth Science & Engineering for the County of Riverside. A copy of the letter is enclosed for your information and use. The portions of the letter dealing with the proposed Special Studies Zone are the failure to extend the fault on the proposed zone where we encountered it along Tenth Street, the placement of a fault at a location covered by our trench where it was not encountered in the trench, and the placement of a few short northwest trending faults which do not appear to be actual faults in the field.

Our report dated October 11, 1977, indicated a fault extends parallel to and nearly coincident with Tenth Street as shown on Enclosure 1 of that report. Faulting was encountered in Trench 3, immediately adjacent to Tenth Street, but was not encountered in Trench 4, northeast of Trench 3. It is our opinion the fault lies immediately beyond the southeast end of Trench 4, based on projection of the fault from the strike obtained in Trench 3, interpretation of aerial photographs, and the presence of a strong magnetic anomaly on magnetometer traverse 2, immediately east of Tenth Street (a change in base levels of approximately 50 gammas similar to the 55 gamma change in base levels where the fault occurred in traverse 1). Our original geologic investigation took under consideration the possibility of faulting extending along Tenth Street as we show on our report as well as an en echelon fault passing through the intersection of Tenth and "D" Street as shown on your proposed Special Studies Zones map. After careful study of the aerial photographs, observation of the test trench walls, and observations in the field, we feel the fault

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continues to the northeast along Tenth Street and very likely en echelons to the north, northeast of West Avenue "D".

If a fault were to curve convexly toward the northwest through the intersection of Avenue "D" and Tenth Street, as shown on the proposed Special Studies Zones map, it would have to pass through the central to northwesterly portion of our Trench 4. The fault as shown on the proposed Special Studies Zones map is approximately coincident with a stream channel crossing the site. Trench 4 was specifically extended to the northwest across the existing drainage and banks of that drainage to determine if the drainage was related to faulting. No offset was encountered in the trench and it was our conclusion that the drainage was not fault related and that an active fault does not exist at the location shown on the proposed Special Studies Zones map. An additional trench was placed closer to the intersection of West Avenue "D" and Tenth Street to specifically intercept a possible projection of a lineation observed along the northwest base of the hills there. Although a fault could pass through the approximate intersection of West Avenue "D" and Tenth Street, curve convexly toward the west and rejoin the obvious fault scarp near West Avenue "E", it is highly unlikely and is not supported by the topography or our observation of aerial photographs.

The short, northwest trending faults, as shown on the proposed Special Studies Zones map, all appear to be currently related to erosion and drainage and may originally have been graded by man as they do not appear natural. Most of the citrus orchards in this area were originally planted in the 1880's. No trenches were placed across these features during our investigation as we did not feel they were related to faulting. Verbal communication with the resident of the house on top of the fault scarp immediately north of West Avenue "E" indicated significant flow occurred along one of these drainages as a result of Oak Glen Creek being breached during the 1969 period of heavy precipitation. None of these features were observable on aerial photographs northwest of Oak Glen Creek (on property under other ownership) which further lends support to these short low banks having been created due to erosion, flooding, or man-made grading as opposed to faulting.

It is still our opinion that the faulting as shown on Enclosure 1 of our October 11, 1977 report is our best interpretation of the most recently active faulting along the Chicken Hill fault near that project. For your convenience we have plotted the approximate locations of our trenches and shown in red where we feel faulting exists on a copy of the proposed Alquist-Priolo Special Studies Zones map.

Enclosed is a copy of a report on an area that may be the northeasterly extension of the Chicken Hill fault as shown on your proposed Special Studies Zones map. This report was a preliminary report and no trenching was conducted for that investigation. The proposed structures were all to be placed away

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from the suspect feature; therefore, trenching was not conducted and is not anticipated to be conducted for that investigation. Observation of the aerial photographs, however, suggests the presence of several short lineations that are not continuous which are parallel to and approximately along the projection of the strike of the Chicken Hill fault as observed near the intersection of West Avenue "D" and Tenth Street. These lineations may or may not be fault related.

A considerable amount of trenching and exploration work was done for the earth-fill dams for the Yucaipa Regional Park. These trenches and investigations were conducted by Converse Davis Associates in the late 1960's and early 1970's. We understand excavation for the earth-fill dams went to depths of approximately 45 to 50 feet to get below the younger alluvium and into the older, less permeable materials. Conversation with personnel from Converse Davis Associates over the past few years indicates faulting was found in alluvium in conjunction with their investigation for those sites. We do not have a copy of that report and have had no projects in the immediate vicinity covered by their report. We suggest you review the result of that work if you have not already done so.

WESTERN HEIGHTS FAULT ZONE

Our investigation along the Western Heights fault zone was minimal, and our report concluded only that the materials not offset by faulting were of Holocene age and that the materials offset by faulting were of probable late Pleistocene age. Because of the lack of precise dating of sediments not offset by faulting, we took the more conservative viewpoint that the fault was active and recommended human occupancy structures not be placed across it. The materials not offset by faulting may in fact be older than the few thousand years estimated in that report.

Please note the northwesterlymost fault shown on the proposed Special Studies Zones map just east of Sand Canyon Road was not encountered in our Trench 1. The fault may have missed Trench 1; however, we thought the trench was far enough north to intercept it based on observation of the terrace level slightly farther to the northeast. It was our opinion that the slight break in slope on our project site and the site along Sand Canyon Road were caused by normal deposition and erosion resulting in different terrace levels as opposed to having been created by offset from faulting.

Burnham & Dutcher indicate another fault exists south of Yucaipa Boulevard; however, we have no direct experience in that area and have no projects across their location of that ground water barrier (fault).

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CONCLUSIONS

It is our opinion substantial changes should be made in the proposed Alquist-Priolo Special Studies Zones along the Chicken Hill fault between West Avenue "E" and Yucaipa Boulevard. We have not directly observed faulting at other places along either the Chicken Hill or Western Heights fault primarily because we have not been involved with any projects in those areas.

Please contact us if we can be of further assistance in your evaluation of faulting in these areas.

Respectfully submitted,

GARY S. RASMUSSEN & ASSOCIATES, INC.



Gary S. Rasmussen
Engineering Geologist, EG 925

GSR/mt

- Enclosure 1: 2000-scale Alquist-Priolo map
- Enclosure 2: References
- Enclosure 3: GSRA letter dated August 29, 1978
- Enclosure 4: Earth Science & Engineering letter dated August 31, 1978
- Enclosure 5: GSRA report dated March 7, 1978 & letter of March 28, 1978

REFERENCES

Gary S. Rasmussen & Associates, Inc., October 11, 1977, Engineering geology investigation of a 45+-acre parcel, SW corner of Tenth Street and "D" Street, Yucaipa, California, Project No. 1237.

Gary S. Rasmussen & Associates, August 29, 1978, Addendum to our report dated October 11, 1977, Project No. 1237-2.

Gary S. Rasmussen & Associates, Inc., December 13, 1977, Engineering geology investigation of the easterly portion of Yucaipa Towncenter, NW corner of Fourteenth Street and Yucaipa Boulevard, Yucaipa, California, Project No. 1178-4.

Earth Science & Engineering, August 31, 1978, Letter to County of San Bernardino regarding review of GSRA report dated August 29, 1978.

Gary S. Rasmussen & Associates, Inc., March 7, 1978, Preliminary engineering geology investigation of proposed maintenance yard, SW corner of Oak Glen Road and Second Street, Yucaipa, California, Project No. 1313.

Gary S. Rasmussen & Associates, Inc., March 28, 1978, Letter, Review of Site Plan for proposed maintenance yard, SW corner of Oak Glen Road and Second Street, Yucaipa, California, Project No. 1313-2.

FOR REVIEW PURPOSES ONLY
This map invalid on January 1, 1998
when Official Map is issued